UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,514	07/06/2001	Abbas Rashid	NEXSI-01022US0	6870

28863 7590 08/15/2005

SHUMAKER & SIEFFERT, P. A.
8425 SEASONS PARKWAY
SUITE 105
ST. PAUL, MN 55125

EXAMINER	
BHANDARI, PUNEET	
ART UNIT	**PAPER NUMBER**
2666	

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,514	RASHID ET AL.	
	Examiner	Art Unit	
	Puneet Bhandari	2666	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/15/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims **1,15,22,25,36 & 37** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 59 & 72 of copending Application No10/036595. Although the conflicting claims are not identical, they are not patentably distinct from each other because of following correspondences.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Regarding claim **1,15,22,25,36 & 37** the limitation an apparatus corresponds to "an apparatus" disclosed in claim 59, line 1 of copending Application No.10/036595.

The limitation a set of input ports to receive data packets for a plurality of priority levels corresponds to "set of input ports to receive data packets for plurality of priority levels" disclosed in claim 59, lines 1-5 of copending Application No.10/036595.

The limitation a set of sink ports coupled to said set of input ports to receive and forward said data packet corresponds to " a set of sink ports in communication with said set of input ports to receive and forward said data packets" disclosed in claim 59, lines 1-5 of copending Application No.10/036595.

The limitation a set of data rings coupling said set of input ports and said set of sink ports corresponds to "set of data rings in communication with said set of input ports and said set of sink ports" disclosed in claim 72, lines 1-2 of copending Application No.10/036595.

The limitation at one of sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels corresponds to "first sink port in said set of sink port calculates a weighted average bandwidth for each priority level in said plurality of priority levels" disclosed in claim 59, lines 7-8 of copending Application No.10/036595.

The limitation rejecting packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority levels exceeds a predetermined value corresponds to "rejecting a packet having first priority level in said plurality of priority level when weighted average bandwidth exceeds a first predetermined value" disclosed in claim 59, lines 9-14 of copending Application No.10/036595.

Regarding claim **15**, claims 59 & 72 of copending Application No.10/036595 corresponds to all the limitations of claim 15 as disclosed above. Also, claims 59 & 72 of copending Application No.10/036595 also corresponds to the limitation rejecting packet

data having first priority level in said plurality of priority levels when the weighted average bandwidth for different one of the priority levels exceeds a predetermined value "rejecting a packet having first priority level in said plurality of priority level when weighted average bandwidth exceeds a first predetermined value" disclosed in claim 59, lines 9-14 of copending Application No.10/036595.

Regarding claim **22**, claims 59 & 72 of copending Application No.10/036595 corresponds to all the limitations of claim 22 as disclosed above. Also, claims 59 & 72 of copending Application No.10/036595 also corresponds to the limitation each sink port in said set of sink ports snoops data packets on each data ring in said set of data rings "first sink port in said set of sink port records traffic volume of packet data for plurality of priority levels" disclosed in claim 59, lines 1-6 of copending Application No.10/036595.

Regarding claim **25**, claims 59 & 72 of copending Application No.10/036595 corresponds to all the limitations of claim 25 as disclosed above. Also, claims 59 & 72 of copending Application No.10/036595 corresponds to the limitation said sink port collecting data for data packet accepted by said sink port " sink port records traffic volume of packet data for plurality of priority levels" disclosed in claim 59, lines 1-6 of copending Application No.10/036595.

Regarding claim **36 & 37** claims 59 & 72 of copending Application No.10/036595 corresponds to all the limitations of claim 36 as disclosed above. Also, claims 59 & 72 of copending Application No.10/036595 corresponds to the limitation storage means for storing the data packet accepted by said sink port " sink port records traffic volume of

packet data for plurality of priority levels" disclosed in claim 59, lines 1-6 of copending Application No.10/036595.

Claims **1,15,22,25,36 & 37** differ from claim 59 & 72 of copending Application No.10/036595 for following reasons. Claims **1,15,22,25,36,37 & 38** do not claim "*determining whether an amount of packet data exceeds a first threshold*". Therefore claims **1,15,22,25,36 & 37** merely broaden the scope of claim 59 & 72 of copending Application No.10/036595.

It has been held that the omission of an element and its function is an obvious expedient if the remaining elements perform the same function as before. See In re Karlosn, 136 USPQ 184 (CCPA). Also not Ex parte Rainu,168 USPQ 375 (Bd. App.1969). The omission of reference element whose function is not needed would have been obvious to one skilled in art.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims **1-3,5-14 & 25-38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al. (US 6,658,016) in view of Lu (US 6,480,911).

Regarding claim **1**, Dai et al. teaches an apparatus *"packet switching fabric"* disclosed column 6, lines 55-57 comprising:

A set of inputs ports to receive data packets is taught by *"input ports"* disclosed in column 8,line 37; and

A set of sink ports coupled to said set of input ports to receive and forward said data packets is taught by "*output ports*" disclosed in column 8 lines 38-39; and

A set of data rings coupling said set of input ports and said set of sink ports taught by "*data ring segment-19*" disclosed in column 6, lines 34-42.

Dai et al fails to teach input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches input ports (320,322,324,326) receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink ports includes a bandwidth allocation circuit (network unit) that calculates a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for at least two of the priority (high and medium) levels exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected first when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to add apparatus of Dai et al. a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **2**, the limitation said set of data rings couples each sink ports to each input port in said set of input ports is taught by *"destination and source are coupled via the data ring"* disclosed in column 7, lines 35-39 of Dai et al.

Regarding claim **3**, the limitation said set of data rings is a single ring is taught by *"data ring"* disclosed in column 7, lines 24-26 of Dai et al.

Regarding claim **5**, the limitation each sink port in said set of sink ports snoop data packets on each data ring in said set of data rings is taught by *"packet routing and control unit-302reads each of the data packet" disclosed in column 14, lines 12-14.*

Regarding claim **6**,the limitation a first sink port in said set of sink ports snoops the data packet on each data ring in said set of data rings to determine whether said data packets are destined for said first sink port is taught by *"determination of destination ID to determine destination associated with received data packet"* disclosed in column 14, lines 13-20 of Dai et al.

Regarding claim **7**, the limitation said first sink snoops each of the data packet to determine whether each of said data packet contains a destination address supported by said first sink is taught by "*destination address included in the header information of each packet is used to determine destination*" as disclosed in column 14, lines 15-20 of Dai et al.

Regarding claim **8**, the limitation first set of input ports in said set of input ports is coupled to a first data ring in said set of data ring is taught by "*data ring port 16 for receiving data"* disclosed in column 6, line 36; a second set of input ports in said set of input ports is coupled to a second data ring in said set of data rings is taught by *"control ring input port 22 for receiving control messages"* as disclosed in column 6, line 42.

Regarding claim **9**, the limitation a first set of sink port in said set of sink ports snoops data packets on each data ring in said set of data rings is taught by "*packet routing and control unit-302 reads each of the data packet"* disclosed in column 14, lines 12-14; and determines whether to accept a data packet based on a set of criteria is anticipated by is taught by "*source managing unit-90 determine weather to accept or discard the packet"* disclosed in column 09-lines 31-45 of Dai et al.

Regarding claim **10**, the limitation said set of criteria is anticipated by "*storage space available*" disclosed in column 8, line 5; includes said sink port having sufficient storage space for storing data packet is taught by "*buffer queue for storing the data packets 86*" disclosed in column 8, line 5 of Dai et al.

Regarding claim **11**, the limitation said set of criteria includes said set sink port supporting a destination target by said data packet is taught by "*network routing table-304*"disclosed in column 27, lines 1-5 of Dai et al.

Regarding claim **12**, the limitation set criteria is taught by "*buffer space*" disclosed in column 10-line 35 includes a total number of packets being received by the said first sink port not exceeding a predetermined number of packets is taught by "*threshold amount of available buffer space*" as disclosed in column 10, lines 35-36 of Dai et al.

Regarding claim **13**, where in the sink port in said set of sink port is taught by "*output ports*" disclosed in column 8 lines 38-39 of Dai et al; includes

A ring interface coupled to said set of data rings to receive data from said data packets is taught by *"input port 16"* disclosed in Fig-1 or column 16, line 36 of Dai et al.

A storage buffer coupled to the said ring interface to receive and store said data is taught by *"buffer 80"* disclosed in Fig-2A of Dai et al.

An output port coupled to said storage buffer to receive said data from said storage buffer is taught by *"storage buffer 80"* disclosed in Fig-2A; and transmit said data on a communication link is taught by *"communication link"* disclosed in column 8, lines 53-55 of Dai et al.

Regarding claim **14**, limitation an input port in said set of input port is anticipated by *"input ports"* disclosed in column 8,line 37 of Dai et al; and

A communication interface to receive data packets from a communication link is anticipated by *"network port 88"* disclosed in Fig-2 of Dai et al.

A storage buffer coupled to said communication link to store data from said packets is anticipated by *"storage buffer 80"* disclosed in Fig-2A; said storage buffer coupled to at least one data ring in said data rings is anticipated by *"storage buffer (86) coupled to data ring (18) "* as disclosed in fig-2 of Dai et al.

Regarding claim **25**, Dai et al teaches method for transferring data packets to target is anticipated by "packet transfer operation" disclosed in column 7, lines 30-31 of Dai et al.

(a). The step of receiving a set of data packets is anticipated by *"data packets are received"* disclosed in column 7, line 32

(b). The step of transferring said set of data packets to set of data rings is anticipated by *"data ring"* disclosed in column 7, line 39 of Dai et al. The limitation a set of sink port is coupled to said set of data rings is anticipated by "destination (sink port) is coupled to the data ring" disclosed in column 7, line 35-39 of Dai et al;

(d). Said sink port, collecting data for data packets accepted by said sink port is anticipated by *"buffer queue for storing the data packets 80*" disclosed in Fig-2A.

Dai et al fails to teach receiving data packets for plurality of priority levels, a sink port in said set of sink ports calculating a weighted average bandwidth for each of the priority levels and rejecting packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink port calculating

a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels (high and medium) exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to add apparatus of Dai et al. a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **26**, the limitation said step (c) and said step (d) are performed by each sink port in said set of sink port is taught by *"buffer queue allocated to each queue"* as disclosed in Fig. 2A Dai et al (step(d)) and *"Packet routing and control unit 302 determine the destination associated with each of the sink port"* disclosed in Fig-3A (step(c)) Dai et al.

Regarding claim **27**, the limitation said set (c) includes the step of:

Said sink port determining whether a data packet includes a destination address in a predetermined set of destination addresses is taught by "*destination address included in the header information of each packet is used to determine destination*" as disclosed in column 14, lines 15-20.

Regarding claim **28**, the limitation said set (c) includes the step of:
Said sink port determining whether to accept said data packet based on additional criteria is taught by *"storage space available"* as disclosed in column 8, line 5. Dai et al

Regarding claim **29**, the limitation said set (c) includes the step of:
Determining whether said sink port is enabled to receive data packet is anticipated by "*source managing unit-determine weather sink port is enabled to receive the data packet"* disclosed in column 09-lines 31-45.

Regarding claim **30,** the limitation said step (c) includes the step of:
Determining whether said sink port has sufficient resources to store said data packet is taught by *" threshold amount of buffer space available"* as disclosed in column 10, line 35 Dai et al.

Regarding claim **31**, the limitation the said step (c) includes step of
Determining whether said sink port is currently receiving a maximum allowable number of packets is taught by *"destination managing unit monitors the availability of buffer space in each of the buffer queue"* disclosed in column 10, lines 28-30 Dai et al.

Regarding claim **32**, the limitation said step (c) (2) includes step of:

Determining weather said data packet has number of byte within a predetermined range is taught by *"the data transfer capacity depends upon the bandwidth of the bus"* as disclosed in column 7, line 20-23 Dai et al.

Regarding claim **33**, the step of said sink port, issuing a rejection signal if said if said sink port determines not to accept said data packet by said sink port is taught by *"terminate the message and report an error"* as disclosed in step 736a of Fig 9A Dai et al.

Regarding claim **34**,the limitation said rejection signal terminates further reception of said data packet by said sink port is taught by *" END"* as after step 736a in Fig 9A. Dai et al

Regarding claim **35**, step of said sink port transmitting data packets collected in step (d) is taught by *"data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54.

Regarding claim **36**, Dai et al. teaches an apparatus for transferring data packets to targets *"apparatus for packet transfer"* disclosed in column 7, lines 31-40 of Dai et al.

The limitation receiving means for receiving a set of data packets is taught by *"data packets are received at a network port"* as disclosed in column 7, lines 35-37 of Dai et al..

A set of sink ports is taught by *"output ports-84"* as disclosed in Fig-2A; coupled to said of receiving means is taught by *"input ports-88"* as disclosed in Fig-2A; to receive said set of data packet from said receiving means is taught by " *for receiving*

data packet " as disclosed in column 7, line 67 of Dai et al.; each set of sink ports including:

The limitation storage means for storing the data packet accepted by the said sink port is anticipated by *"storage buffer 80"* disclosed in Fig-2Aof Dai et al.

The limitation data ring means for coupling said receiving means to said set of sink ports is anticipated by *"data ring-19"* disclosed in Fig.1 of Dai et al.

Dai et al. fail to teach the limitation determining means for determining a weighted average bandwidth for each of priority levels and rejecting packet data when the weighted average bandwidth for at least two of priority levels exceeds a predetermined value.

Lu teaches determining weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejecting a packet data (low priority packet data) when the weighted average bandwidth for at least two of priority levels (high and medium) exceeds a predetermined value (threshold) disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to add apparatus of Dai et al. a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted

average bandwidth for at least two of the priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **37**, Fig 1 of Dai et al. teaches cross-bar switch.

The limitation a set of input ports to receive data packet from a communication link is anticipated by *"input ports"* disclosed in column 8,line 37 of Dai et al.

The limitation a set of sink port coupled to said set of input ports to receive said data packets from said set of input ports is anticipated by "*output ports*" disclosed in column 8 lines 38-39 of Dai et al.

The limitation each sink port in said set of sink port includes:

A ring interface coupled to said set of data ring to receive data from said data packets is disclosed by *"input port 16"* disclosed in Fig-1 or column 16, line 36

A storage buffer coupled to said ring interface to receive and store said data is disclosed by *"storage buffer 80"* disclosed in Fig-2A, and

An output port coupled to said storage buffer to receive said data from said storage buffer is disclosed by *"output port 84"* disclosed in Fig-2A and transmit said data on a communication link; and

A set of data rings coupling each sink port in set of sink ports to each input port in said set of input ports is disclosed by *"data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54

The limitation each sink port in said set of sink port snoops data packets on each data ring in said set of data rings is disclosed by "*packet routing and control unit-302reads each of the data packet" disclosed in column 14, lines 12-14.*

Dai et al fails to teach receiving data packets for plurality of priority levels, a sink port in said set of sink ports calculating a weighted average bandwidth for each of the priority levels and rejecting packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink port calculating a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels (high and medium) exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to add apparatus of Dai et al. a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted

average bandwidth for at least two of the priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **38,** Dai et al. teaches a method for transferring data packets to target disclosed in column 7, lines 31-40.

(a) The step of receiving a set of data packets is taught by "d*ata packet is received on a network port"* as disclosed in column 7, line 36 of Dai et al.

(b) The step of transferring said set of data packet to a set of data rings is taught by *"data ring 19 and control ring 45"*disclosed in column 7, lines 39-40 of Dai et al. and the step of a set of sink ports is coupled to said set of data rings is taught by "*destination (sink port) is coupled to the data ring"* disclosed in column 7, line 35-39 of Dai et al.

(c) The step of a sink port in said set of sink ports, determining whether to accept data packets in said set of data packets, based on a set criteria is taught by "*source managing unit-90 determine weather to accept or discard the packet"* disclosed in column 09-lines 31-45 of Dai et al.

said step of (c) includes the steps of:

(1) said sink port, determining whether a data packet includes a destination address in predetermined set of addresses is taught by *"source ID include a local device"*, disclosed in block 734a in Fig-9A;and

(d) The step of said sink port, collecting data packets accepted by said sink port is taught by "*storage buffer 80"* disclosed in Fig-2A

(e) The step of said sink port, issuing a rejection signal if the said sink port determines not to accept said data packet in the said step (c)(2) is taught by *"terminate the message and report an error"* as disclosed in step 736a of Fig 9A ; and

(f) The step of said sink port transmitting said data packets collected in said step (d) taught by "*data being transmitted on 10 Mbps or 100 Mbps links"* as disclosed in column 8, lines 53-54

The limitation said step (c) and said step (d) are performed by each sink port in said set of sink port. is anticipated by *"buffer queue allocated to each queue"* as disclosed in Fig. 2A (step(d)) and *"Packet routing and control unit 302 determine the destination associated with each of the sink port"* disclosed in Fig-3A (step(c)).

Dai et al fails to teach receiving data packets for plurality of priority levels, a sink port in said set of sink ports calculating a weighted average bandwidth for each of the priority levels and rejecting packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink port calculating a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels (high and medium) exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of

traffic, a threshold buffer space is allocated to each class and a lower class is rejected when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to add apparatus of Dai et al. a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for at least two of the priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

5. Claims **15-24** rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson (US 6,728,206) in further view of Lu (6,480,911).

Regarding claim **15**, a cross-bar switch is taught by *"cross-bar switch"* disclosed in column 5, line 22 of Carlson.

The limitation a set of input ports to receive data packets from a communication link is taught by "*input port A (301)*" disclosed in Fig 3 or column 6, line 11 of Carlson.

The limitation a set of sink ports coupled to said set of input ports to receive said data packets from the said set of input ports is taught by *"output port A (302)*" disclosed in Fig-3 or column 6, line 13 of Carlson

The limitation set of data rings coupling each sink port in said set of sink ports to each input ports in said set of input ports is anticipated by *"data rings 370 and 390"* disclosed in Fig-3 or column 6, lines 20-24 of Carlson.

Carlson fails to teach input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches input ports (320,322,324,326) receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink ports includes a bandwidth allocation circuit (network unit) that calculates a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for a different one priority (high and medium) levels exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected first when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to cross-bar of Carlson a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of priority levels exceeds a predetermined value)

of Lu. One in ordinary skill in art would have been motivated to do provide an apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **16**, wherein sink port in said set of sink ports snoops data packet on each data ring in said set of data rings is taught by *"each register is coupled to get message from the response ring"* disclosed in column 8, lines 44-46 of Carlson.

Regarding claim **17**, the limitation the first sink port in the said set of sink ports snoops the data packet on each data ring in a said set of data rings to determine whether said data packets are destined for said first sink port is taught by *"checks the address field of the message"* disclosed in column 11, lines 5-10 of Carlson.

Regarding claim **18,** the limitation said first sink port snoops each of said data packets to determine whether said each of said data packets contains destination address supported by said first sink port is taught by *"checks the address field of the message"* disclosed in column 11, line 5-20 of Carlson.

Regarding claim **19**, the limitation first set of input ports in said set of input port is coupled to a first ring in said set of rings and second set of input ports in said set of input ports is coupled to a second data ring in set of data rings is taught by " *input ports coupled to ring 390 and 370"* disclosed in Fig-3 of Carlson.

Regarding claim **20**, where in sink port in said set of sink ports is taught by *"Output Ports A, B, C, D, E & F"* disclosed in column 6, lines11-15 of Carlson.

A ring interface coupled to said set of data rings to receive data from said data packets is taught by *"connection between input port A and two rings*" disclosed in Fig-3;

A storage buffer coupled to said ring interface to receive and store data is taught by *"storing at PIO message for a time period in a register"* disclosed in column 11, lines 45-47; and

An output port coupled to said storage buffer to receive said data from the storage buffer and transmit the data on a communication link is taught by *"data is forwarded to the port register A"* as disclosed in column 11, line 65-67 of Carlson.

Regarding claim **21**, wherein an input port includes:

A communication interface to receive data packets from a communication link is taught by *"Input Port A receiving data from node 30"* as disclosed in Fig 3 of Carlson.

A storage buffer coupled to said communication link to store data from said data packets is taught by *"Register RA (36) is coupled to node 30"* as disclosed in Fig 3, said storage buffer coupled to at least one data ring in said set of data rings is anticipated by "*Register RA (36) is coupled to ring 370 and 390"* as disclosed in Fig 2 of Carlson.

Regarding claim **22**, Carlson teaches a cross-bar switch in column 5, line 22; comprising

The limitation a set of input ports to receive data packets from a communication link is taught by "*input port A (301)*" disclosed in Fig 3 or column 6, line 11; and

The limitation set of sink ports coupled to said set of input ports to receive said data packets from the said set of input ports is taught by *"output port A (302)*" disclosed in Fig-3 or column 6, line 13 of Carlson.

The limitation set of data rings coupling each sink port in said set of sink ports to each input ports in said set of input ports is taught by *"data rings 370 and 390"* disclosed in Fig-3 or column 6, lines 20-24 of Carlson.

The limitation sink port in said set of sink ports snoops data packet on each data ring in said set of data rings is taught by *"each register is coupled to get message from the response ring"* disclosed in column 8, lines 44-46 of Carlson.

Carlson fails to teach input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of the priority levels exceeds a predetermined value.

Fig. 5 of Lu teaches input ports (320,322,324,326) receiving data packets for plurality of priority levels (high, medium and low). Fig. 3 and Fig 8 of Lu teaches at least one of the sink ports includes a bandwidth allocation circuit (network unit) that calculates a weighted average bandwidth (weight) for each of the priority levels (high, medium and low) and rejects packet data having first priority level (low) in said plurality of priority levels when the weighted average bandwidth for a different one priority (high and medium) levels exceeds a predetermined value (threshold) also disclosed in column 10, lines 9-59. The reference discloses that weights are assigned to each of the class of traffic, a threshold buffer space is allocated to each class and a lower class is rejected first when higher and medium class traffic exceed the threshold.

At the time invention was it would have been obvious to cross-bar of Carlson a queue management method (input ports receiving data packets for plurality of priority levels, at least one of the sink ports includes a bandwidth allocation circuit that calculates a weighted average bandwidth for each of the priority levels and rejects packet data having first priority level in said plurality of priority levels when the weighted average bandwidth for a different one of priority levels exceeds a predetermined value) of Lu. One in ordinary skill in art would have been motivated to do provide a apparatus and a method for class sensitive queuing (disclosed in column 1, lines 1-10 of Lu).

Regarding claim **23**, the limitation first set of input ports in said set of input port is coupled to a first ring in said set of rings and second set of input ports in said set of input ports is coupled to a second data ring in set of data rings is anticipated by " *input ports coupled to ring 390 and 370"* disclosed in Fig-3 of Carlson

Regarding claim **24**, the limitation in sink port in said set of sink ports is taught by "*Output Ports A, B, C, D, E & F*" disclosed in column 6, lines11-15 of Carlson.

A ring interface coupled to said set of data rings to receive data from said data packets is taught by *"connection between input port A and two rings*" disclosed in Fig-3 of Carlson.

A storage buffer coupled to said ring interface to receive and store data is taught by *"storing at PIO message for a time period"* disclosed in column 11, lines 45-47 of Carlson.

An output port coupled to said storage buffer to receive said data from the storage buffer and transmit the data on a communication link is taught by *"data is forwarded to the port register A"* as disclosed in column 11, line 65-67 of Carlson.

6. Claim **4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Dai et al. (US 6,658,016) an in view of Lu (6,480,911) as applied to claim 1 above, and further in view of Yamamoto et al (US 6,392,991).

Regarding claim **4**, Dai et al in view of Lu teaches all the limitation of claim 4 (refer 103 rejection for claim 1 above) but Dai et al. in view of Lu fails to disclose wherein said set of data rings includes three rings. However Yamamoto et al. discloses a set of three data rings connecting the switching system (refer Fig. 7 and column 3, lines 65-67). At the time invention was made it would have been obvious to one in ordinary skill in art to add to apparatus of Dai et al. three ring architecture of Yamamoto et al. One in ordinary skill in art would have been motivated to do so to communicate efficiently between various nodes (refer column 4, lines 1-18 of Yamamoto et al.).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure are Ma et al. (US 6,775,280), Kalkunte et al (US 6,470,016),Jones (US 6,327,246), Eckberg et al. (US 4,769,810) and Aimoto et al . (US 6,144,636).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Puneet Bhandari whose telephone number is 571-272-2057. The examiner can normally be reached on 9.00 AM To 5.30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on 571-272-3174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Puneet Bhandari
Examiner
Art Unit 2666

DAVIS TON
PRIMARY EXAMINER